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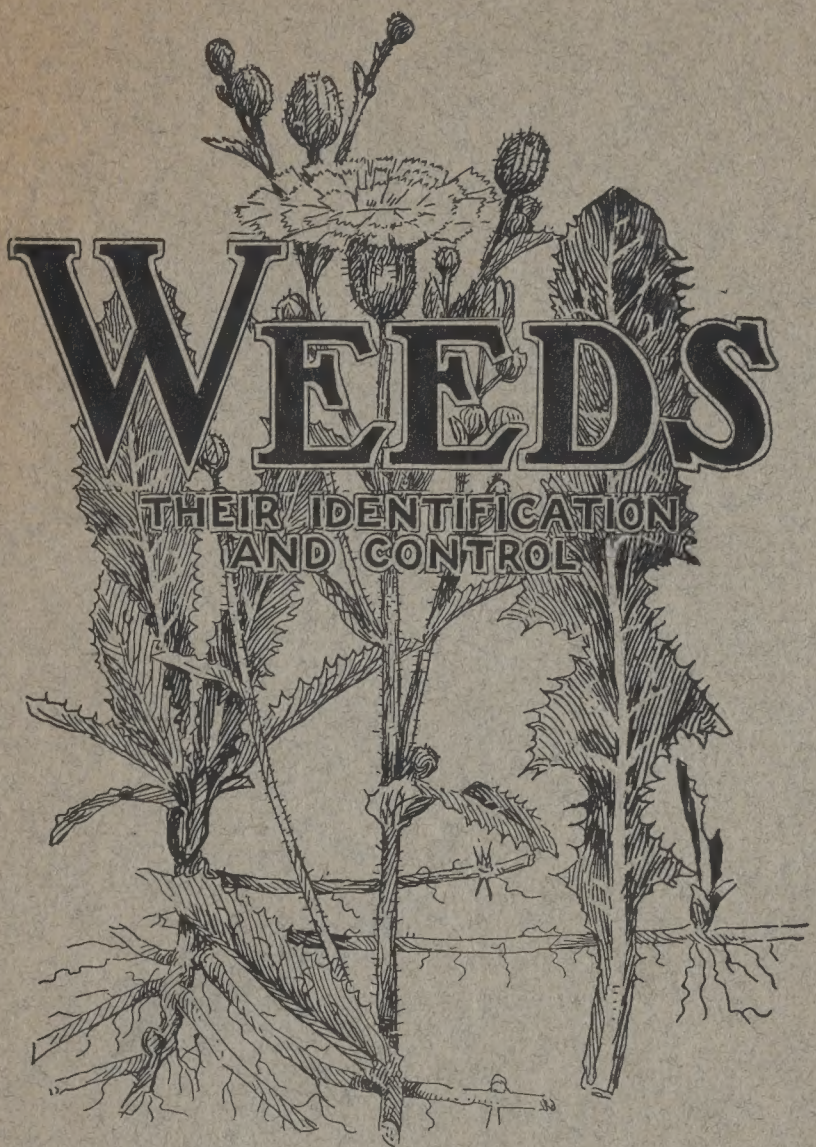

WEEDS

THEIR IDENTIFICATION AND CONTROL

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HON. C. M. HAMILTON, MINISTER OF AGRICULTURE.

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BULLETIN No. 57

GOVERNMENT OF THE PROVINCE OF SASKATCHEWAN

DEPARTMENT OF AGRICULTURE

WEEDS

THEIR IDENTIFICATION AND CONTROL

By

M. P. TULLIS,

Field Crops Commissioner.

PUBLISHED BY DIRECTION OF HON. C. M. HAMILTON, MINISTER OF AGRICULTURE.

(Third Edition)

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PREFACE

In this publication more prominence is given to weeds of a highly noxious nature than some others, in the hope that the people of Saskatchewan will concentrate their efforts on the control of these particularly. *The Noxious Weeds Act* is included for the purpose of indicating the legislation at the disposal of individuals and districts obliged to protect themselves from careless or indifferent neighbours.

There are descriptions used similar to those published in Bulletin 31, "Farm Weeds and Better Farming." The outline of methods of controlling and eradicating weeds is taken practically as a whole from a book on agriculture published by John Bracken, B.S.A., Professor of Field Husbandry, University of Saskatchewan.

The illustrations are mostly copies of drawings by Norman Criddle, Treesbank, Man.

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The Noxious Weeds Act

Weeds and Their Control

WEEDS ARE LIKE DISEASES.

Weeds are to the soil as diseases are to the body. Both destroy the intended functions of the source of their life. There are different kinds of weeds and there are different kinds of diseases, with varying powers for destruction and with varying degrees of tenacity. It is difficult to eradicate some weeds, so with some diseases. Man is fighting against both for his existence. He finds that if some diseases attack, are allowed to develop and become firmly established, there may be no cure. So with weeds. An ounce of prevention is worth tons of cure. The time to act is not when it is too late. Keep the weeds out, but if they happen to get in, act immediately. The longer the wait, the stronger the entrenchment and the more difficult they are to oust.

WHAT MUST THE FARMER DO?

There are two classes of farms:

1. The clean farm.
2. The weedy farm.

The farmer with the clean farm has only to prevent weeds from coming in.

The man with the dirty farm, or the farm already infested with weeds, must prevent weeds from coming in and he must also eradicate those that are already there.

Before the farmer on either class of farm can do anything intelligent he must

KNOW
- the noxious weeds,
- how they spread,
- their habits of growth,
- how to kill them.

1. KNOW THE WEEDS.

List of Noxious Weeds Found in Saskatchewan.

Perennial Sow Thistle, Canada Thistle, Wild Oats, Stinkweed, Wild Mustard, Hare's Ear Mustard, Tumbling Mustard, Ball Mustard, Russian Thistle, Tansy Mustard, Wormseed Mustard, False Flax, Bird Rape, Shepherd's Purse, Blue Burr, Purple Cockle, Cow Cockle, Night-flowering Catchfly and Rag Weed. To this list all Barberry shrubs (with the exception of the Japanese variety) have been added.

2. KNOW HOW WEEDS SPREAD.

(*a*) MAN, knowingly or unknowingly, often brings in weed seeds in seed, feed or packing material. It is quite probable that most of our weeds were brought into this country in cars with settlers' effects.

Threshing machines, stook wagons and farm machinery spread weed seeds from one farm to another.

(*b*) ANIMALS, including both the domestic and wild, with the exception possibly of sheep, have not the digestive powers to destroy the germination of some of the hardest weed seeds and so they are passed through the digestive organs of the animals and spread about the fields.

(*c*) WATER in the form of streams and rivers, especially, carry large numbers of weed seeds in the current from one locality to another.

(*d*) WIND will carry those weed seeds that are fitted with the downy parachute, as in the case of Perennial Sow Thistle, or Canada Thistle, for example. Mature plants themselves are often blown about. Russian Thistle and Tumbling Mustard are especially good examples. The stem breaks close to the ground and the whole plant tumbles along shaking seeds out as it goes.

3. KNOW THE HABITS OF GROWTH OF THE NOXIOUS WEEDS.

(*a*) ANNUALS are those that grow from seed, blossom, produce seed and die the same season. Wild Oats, Wild Mustard, Bird Rape, Russian Thistle, Ragweed, Cow Cockle, Purple Cockle, Night-flowering Catchfly, Shepherd's Purse, Wormseed Mustard, False Flax, Ball Mustard, Tumbling Mustard, Hare's Ear Mustard, Stinkweed and Blue Burr belong to this class. The following are winter annuals in addition to being annuals: Stinkweed, Hare's Ear Mustard, Tumbling Mustard, Ball Mustard, False Flax, Wormseed Mustard, Shepherd's Purse, Blue Burr, Purple Cockle. Winter annuals are those that germinate in the fall of the year, remain green all winter and continue their growth in the spring from where they left off the fall before. They complete their life within a year.

(*b*) BIENNIALS are those that require two years before they produce seed and die. The first year they usually grow a rosette of leaves and establish a root for the second year. Of the noxious weeds Tansy Mustard and Wormseed Mustard belong to this class.

(*c*) PERENNIALS are those that grow either from seed or from roots already in the ground. In either case permanently established roots are produced from which the plant continues to grow from year to year. Perennial Sow Thistle and Canada Thistle of the noxious weeds belong to this class.

4. KNOW HOW TO KILL WEEDS.

The following extract taken from a book on agriculture in the course of preparation by Professor John Bracken, is an excellent presentation of the control and eradication of weeds.

How to Prevent Weeds From Developing Seeds.

Having a knowledge of the appearance of the different weeds, their duration, habits of growth and means of spreading, a man can more intelligently outline for himself under the peculiar soil and climatic conditions that exist where he lives the practices he will employ in controlling weeds. He will seldom use all of the means available to accomplish the end he desires, but only such of the methods as best fit into his system of farming.

Among the chief means that are now followed on Western farms for preventing weeds from developing seeds are:

1. Fallowing, to get the seeds in the soil germinated and the seedlings killed.
2. "Duckfooting" the fallow in late fall if biennials are growing on it.
3. Late spring cultivation after weeds have started, and before early maturing crops are sown.
4. Sowing annual hay crops such as oats or beardless barley, to be cut before weed seeds mature.
5. Using early maturing grain crops such as winter rye and early six barley which ripen before many of the weed seeds.
6. Harrowing growing crops of grain after they are up, to kill the small weeds that may be starting.
7. Early fall cultivation of stubble land to encourage germination of seeds, which may then be destroyed by the low temperatures of winter.
8. Ploughing stubble land in fall or spring if biennial weeds are prevalent.
9. Sowing perennial hay crops which (1) smother many weeds, and (2) are cut before most weed seeds mature.
10. Mowing weeds on roads, around fences and in waste places before seeds develop.

How to Kill Perennial Weeds.

Some of our perennial weeds are the most difficult of all to control while some are quite easily eradicated. The tap or fibrous rooted perennials can be killed by deep ploughing and careful covering of all vegetation followed by surface cultivation. The creeping rooted ones are not so easily dealt with. One ploughing is seldom sufficient to kill

them and frequently several ploughings do not succeed in doing so. The usual methods employed with the creeping rooted perennials are:

1. Shallow ploughing in the fall and deep ploughing the next summer after the weeds have made a fresh start. The first ploughing followed by the cold winter gives the plants a setback and the deep ploughing when they have not entirely recovered, gives them another. Surface cultivation as needed may then be given to prevent green leaves forming on any that may remain. This plan, or some modification of it, is generally used for the Perennial Sow Thistle.
2. Deep ploughing as soon as the weather turns warm in May, then sowing thickly to a leafy crop like oats or barley. This often gives very satisfactory results with Quack Grass.
3. Mowing and removing the weeds just after blossoming when they are least able to stand a check, then deep ploughing followed by deep, thorough and frequent cultivation to keep the land black. This is frequently used for the control of Canada Thistle.

HOW TO PREVENT THE INTRODUCTION OF WEEDS TO THE FARM.

With the exception of only a few native ones, all the weeds now on our farms have grown from seeds that were introduced to it by man or other agencies. The prevention of weeds coming to the farm is the big problem of men on virgin soils, and not an unimportant problem for all other farmers. Among the means of prevention are:

1. Using only clean seed—unclean seed is chiefly responsible for the weed evil.
2. Buying only such feed grain as is free from Wild Oats, Mustard and other weed seeds, and such forage grasses as are free from Canada and Perennial Sow Thistles.
3. Controlling soil drifting—a man cannot, of course, farm his neighbour's land and he cannot keep the weed seeds from blowing about. Co-operative community effort as well as better farming must be enlisted in the fight against weeds.
4. Cleaning the grain separator before it comes on the farm—the thresherman may resent this practice, but the farmer will suffer if it is not carried out.
5. Preventing stray animals roaming over the land—the dissemination of seeds in the manure of wandering stock is of common occurrence.
6. Preventing the roadside weeds going to seed—this may be society's business, but it is sure to be the individual farmer's loss if not looked after.
7. The intelligent enforcement of weed control legislation—laws do not kill weeds, but they give power to communities to protect themselves from careless land owners and operators.

Means at Man's Disposal for Controlling Weeds.

The chief means at our disposal for controlling weeds already in the soil are tillage, crop rotations, smothering, hand pulling, pasturing and chemical sprays.

Tillage. In so far as controlling weeds is a function of fallowing it is accomplished by tilling the latter in such a way as (1) to germinate the weed seeds present, and (2) to kill the weeds that grow, and (3) if not successful in the latter, to prevent the weeds forming seeds.

The use of hoed or intertilled crops enables one to germinate seeds and kill annual and biennial weeds without leaving the land idle.

By ploughing in fall or spring every year, biennials can be controlled absolutely and perennials can at least be kept in check. By discing early in the fall, annuals can be lessened, but not entirely controlled. By using the duckfoot cultivator small weeds of all types can be killed. By harrowing, young weeds can often be lessened at a very low cost, whether they appear in the fallow or growing crop.

Digging by hand is not a popular method of weed control, but when Canada or Sow Thistle is first observed in small patches, they could be "eradicated" by hand if the area is too small to cultivate satisfactorily with machinery.

Crop Rotations. If we had good crop rotations we could control our weeds at a small fraction of the present cost. But there are several fundamental reasons why good rotations are not now being practised. In considering this question four important facts should be kept in mind:

1. Perennial hay crops will control weeds having short lived seeds, such as wild oats, providing the introduction of other wild oat seeds is prevented.

2. An occasional fallow encourages germination of weed seeds in the soil and permits killing the young plants shortly after they begin to grow.

3. Intertilled crops will lessen the necessity for fallowing to kill weeds, but may not prove profitable on a large acreage under present economic conditions.

4. Early maturing crops that may be harvested before weeds ripen enables one to prevent seed development. Among these are (1) grain crops to be cut for forage, (2) winter rye, and (3) early barley.

Chemical Sprays. A 20 per cent. solution of Iron Sulphate (100 pounds to 50 gallons of water per acre), applied on bright sunny days to mustards coming into bloom, will prevent much of it developing. Another solution used is a 2 per cent. solution of Copper Sulphate (10 pounds to 50 gallons of water per acre). These chemicals may be applied with either a hand or power sprayer. Some investigators claim that Iron Sulphate solution will kill all Mustards, Cow Cockle, Dandelion, Canada Thistle, Bindweed, Plantain, Ragweed and some other

weeds. Others are less optimistic. In any case the practice of spraying for weed control is expensive and has not yet, therefore, come into general use.

Pasturing. When pasture is short, sheep aid in controlling Mustard, Plantain, Thistles, Lamb's Quarters, Shepherd's Purse, and many other weeds, but they seldom touch Stinkweed or Blue Burr.

Smothering. Leafy crops on spring ploughing aid in the control of Quack Grass by smothering. It is a fact also that many young weed plants are prevented from developing, by the crowding and shading of a good stand of any crop. This is why we find so many weeds where the drill has missed a strip and so few relatively where no skips in seeding occur. This fact is of great significance and should be appreciated by every grain grower. If we can succeed in giving our crops a good "start," particularly after having given the weeds a "set-back," our problem will have been made much easier; and a good even stand with no misses is important for the same reason.

Tar paper covered with soil is sometimes used to smother Canada or Sow Thistle when found in small patches.

Hand Pulling. Hand pulling weeds is expensive and with labour at the present price is impracticable except on small areas or as a preventive measure on relatively clean land. Where only a few weeds are present in a field under these conditions "an ounce of prevention" is worth "a ton of cure" and roguing a field may be much less expensive than leaving the weeds to multiply and to add to the difficulties of future crop production.

THE CONTROL OF ANNUAL WEEDS.

Wild Oats is a typical annual weed, and incidentally, one of the worst we have. The first measure of control is to stop sowing them, a measure that is easy to plan but difficult to put into practice; the second is to prevent their introduction to the farm in feed, in threshing machines, by wandering stock, etc.; the third is to prevent them from going to seed by (*a*) double discing or ploughing shallow early in the fall so as to encourage germination and subsequent death by freezing; (*b*) to kill as many as possible in the fallow year by discing after the first growth starts in the spring, and ploughing after the second growth starts.

These three practices may be followed on any grain farm with no serious alteration of cropping plans and no lessening of the acreage sown. If the weeds are so prevalent that these measures are insufficient, several others may be followed. Winter rye may be sown on the fallow to smother the oats the following year; or if the stand of rye is thinned out and wild oats grow, the crop may be cut for hay before the oats ripen. Early barley may be sown in the spring after a crop of wild oats has been killed by thorough discing or shallow ploughing; and the barley may be cut for hay if the weeds develop, or left for grain if they do not. Early fall cultivation after this crop, providing there is sufficient mois-

ture, will start many of the oats still left in the soil. A corn crop or a potato crop may be used instead of the rye or barley and with better results. If these measures do not result in more or less complete eradication, tame grasses should be sown and left down two years or more, and a year taken to break up the land before the next crop is put in.

The annual mustards and all other plants of similar habit may be controlled by the practices outlined for wild oats. Harrowing the growing crop after it is up, a practice that will not kill wild oats, is an additional means of killing the smaller seedlings of these annual plants. On account of the long time the hard seeds of many of these weeds may live in the soil, the use of perennial crops has not proven as useful as in the control of wild oats.

The Control of Winter Annual and Biennial Weeds.

Most of the so-called Winter Annuals, of which Stinkweed is a typical example, may develop as annuals if they happen to get a start early enough in the season. If they start in the spring they may be prevented from seeding by the practices suggested for controlling annual weeds. Those that start in the fall and those of the earlier plants that have not produced seed may be killed by the treatment outlined in the next paragraph for biennials.

Blue Burr and Tansy Mustard are typical biennial weeds. If clean seed is always sown, and if seeds of Tansy Mustard are kept from blowing in, and those of Blue Burr from being carried in by stock or otherwise, these weeds can be controlled by late fall or early spring cultivation of all fields whether fallow or stubble. Fall or spring ploughing of stubble fields is to be preferred. Discing will kill the young plants only if the discs are sharp and the soil firm. Thorough cultivation of the fallow late in the fall with a "duckfoot" cultivator will kill most of the winter annual and biennial weeds that have started.

When dealing with either biennials or winter annuals it should be kept in mind first that late fall cultivation is essential whether early cultivation has been given or not, and second that the use of biennial crops like winter rye and sweet clover which aid in the control of annual weeds, only foster the development and spread of biennial weeds.

In some seasons some biennial weeds will germinate, and like annuals produce seed in the same year. Fall cultivation will not control these. The usual cultivation given to control other annual weeds will, however, take care of them.

The Control of Perennial Weeds.

Quack grass is a typical perennial weed in many parts of the west. It can be controlled in breaking by:

1. Ploughing all the land and leaving no skips or misses.
2. Ploughing shallow early in June and ploughing again deep late in the summer.

3. On less "grassy" land in more dry areas, and particularly in dry seasons, deep breaking followed by timely and sufficient surface cultivation *may* kill the native quack but seldom kills the sweet grass so frequently found in low moist places.

The chief means of controlling quack grass in stubble fields are:

1. Ploughing in the fall—a "dry" time.
2. Ploughing in spring and seeding at once to a leafy crop such as oats or barley.

When present in the fallow quack grass may be controlled by:

1. Ploughing and digging out the roots with a spring tooth cultivator; always costly and not always an efficient method, but sometimes advisable and necessary.
2. Ploughing twice preferably shallow in the fall and deep in the late June or early July following.

Rose bushes can be controlled in much the same way but when backsetting or ploughing stubble or ploughing fallow the second time, deeper work is necessary and more deep surface cultivation is desirable.

The Canada and Sow Thistles in stubble and fallow are much more difficult to control. In addition to the practices suggested above for quack grass, frequent and thorough surface cultivation with cultivators having sharp cutting blades is desirable. After giving the plants as serious a setback as possible by deep ploughing, one should endeavour to prevent the appearance of any young thistles above ground. This requires frequent and strenuous cultivation but given favourable weather will result in the gradual death of the creeping root stocks by starvation, because they cannot be nourished if green leaves are prevented from forming.

Descriptions and Illustrations of the Noxious Weeds

PERENNIAL SOW THISTLE.

COMMON NAMES.—Perennial Sow Thistle, Field Sow Thistle, Creeping Sow Thistle, Milk Thistle, Corn Sow Thistle.

BOTANICAL NAME.—*Sonchus arvensis,* L.

ORIGIN.—Introduced from Europe.

GROWTH.—Perennial.

DATE OF RIPENING.—Flowers appear June to August, seeds often ripe in July.

METHOD OF PROPAGATION.—By seeds and by running rootstocks.

THE PLANT.—The first appearance of the young shoots in late May or June is in the form of a rosette of leaves often mistaken for dandelion. However, they differ in that the leaves are thicker, stiffer and usually of a lighter green.

Both a prickly and a smooth variety are commonly found in Saskatchewan. The top part of the stem and flower involucre in the former case are covered with glandular hairs, in the latter these are absent. The whole plant is filled with a bitter milky juice.

Root.—The root stocks extend along about four inches below the surface of the ground. One specimen examined had six plant shoots on two inches of root.

Stem.—Two to five feet high, hollow with a scarcity of leaves and branching towards the top.

Leaf.—Four to twelve inches long, deeply cut with divisions often pointing slightly backwards. The heart-shaped leaf base clasps the stem. There are numerous soft spines around the outline of the leaf.

Flower.—The flowers are similar to those of the common dandelion in colour and size, a dozen or more flowers often on a single stem.

Seed.—The seed is about an eighth of an inch long, oblong, dark reddish brown, the surface of which has longitudinal ribs with wrinkles across them. Each seed has a tuft of white silky hair which when attached may sometimes assist the seed in being carried along by the wind. An average plant will produce several thousand seeds.

REMARKS.—If Perennial Sow Thistle becomes established it is one of the most difficult to eradicate. Dandelion, Blue Lettuce and Annual Sow Thistle are often mistaken for it.

Perennial Sow Thistle

(See comparisons, page 48.)

CANADA THISTLE.

COMMON NAMES.—Canada Thistle, Creeping Thistle.

BOTANICAL NAME.—*Cirsium arvense,* Scop.

ORIGIN.—Introduced from Europe.

GROWTH.—Perennial.

DATE OF RIPENING.—Flowers appear June to August, seeds often ripe in July.

METHOD OF PROPAGATION.—By seeds and rootstocks.

THE PLANT.

Root.—Rootstocks extend along from five to fifteen inches below the surface and parallel to it. These send up new plants every few inches.

Stem.—Erect, two to four feet high having fine longitudinal line markings.

Leaf.—Narrow, krinkled and very prickly clasping the stem slightly at the base, dull green colour, a smooth glossy appearance on the upper side while the under surface is grayish, being covered with down.

Flower.—Incomplete, some plants bearing male flowers and producing no seeds, others bearing female flowers only and producing seeds. The flowers of the male plant are globe shaped about an inch across while those of the female plant are compressed in appearance about half the size of the male, oblong rather than globular.

Seed.—About one-eighth of an inch long, oblong, light brown, surface smooth and somewhat flattened and curved. The large end of the seed is nearly round with a narrow rim having a small cone shaped projection inside. Attached to the rim is a parachute of feathery down easily detached if disturbed.

REMARKS.—Canada Thistle is quite commonly mistaken for Prairie Thistle.

Canada Thistle

WILD OATS.

COMMON NAME.—Wild Oats.

BOTANICAL NAME.—*Avena fatua,* L.

ORIGIN.—Introduced from Europe.

GROWTH.—Annual.

DATE OF RIPENING.—Variable, the latter part of June and later.

METHOD OF PROPAGATION.—By seed.

THE PLANT.

Root.—Fibrous

Stem.—Similar to the cultivated oat but slightly taller.

Panicle.—Covered with a greenish white bloom that distinguishes the growing plant from the cultivated oat plant, especially when both are growing together in a field and are viewed from a distance.

Seed.—The two characteristics that distinguish it from the cultivated oat are the horse shoe shaped scar at the base and the more or less stiff hairs or bristles around the scar. Sometimes there is present a stiff twisted awn, often bent at right angles, but this is usually broken off in threshing.

REMARKS.—

Description of the Wild Oat kernel as given in Bulletin No. 2 M.A.C.
(*See illustration opposite page.*)

1. Characteristic wild oat, very hairy, with right angled awn and pronounced spoon bill.

2. Only a few hairs at the lower end and more plump, but other characters the same.

3. Less hairy towards the upper end.

4. With scarcely any hairs on the main grain and none on the bosom oat.

5. A similar bosom oat taken from a wild main oat with none of the characteristics of the wild variety.

6. A brown hairless variety with pronounced spoon bill, but is not at all plump.

7. A yellowish variety much like No. 6 except in colour.

8. A white grain, no hairs, but quite thin, the awn and bill being well marked.

9. A plump, white grain, with no ordinary characteristics except the spoon bill

10. A larger and plumper white grain, very closely resembling Abundance oats and presumably a false wild oat.

Wild oats will come through 3 to 5 inches of soil and will lie on the ground several years without losing their vitality.

Wild Oats

STINKWEED.

COMMON NAMES.—Stinkweed, Frenchweed, Pennycress, Bastard Cress, Mithridate Mustard.

BOTANICAL NAME.—*Thlaspi arvense,* L.

ORIGIN.—Introduced from Europe.

GROWTH.—Annual and winter annual.

DATE OF RIPENING.—Flowering and seeding during spring, summer and autumn, seeds and flowers being present on the same plant at the same time.

METHOD OF PROPAGATION.—By seed.

THE PLANT.

Root.—Fibrous

Stem.—Erect, two to twenty-four inches high.

Leaf.—Root leaves are borne on footstocks, the stem leaves spear-shaped, coarsely notched and clasps the stem with their arrow-shaped base.

Flower.—Cream white, small, inconspicuous, four petals.

Seed.—Seed pod about one-half inch broad, winged with notch at top, flat, containing eight to sixteen seeds, an average plant may produce 20,000 seeds.

REMARKS.—Young green plants in the fall will remain dormant during the winter and complete their growth the following spring. Frenchweed seeds have been known to have good germination after having been buried for fifty months.

Stinkweed

WILD MUSTARD.

COMMON NAMES.—Wild Mustard, Herrick, Charlock, Ontario Mustard, Yellow Mustard, Cadlock.

BOTANICAL NAMES.—*Brassica arvensis,* L., *Sinapis arvensis,* L., *Brassica sinapistrum,* Boiss.

ORIGIN.—Introduced from Europe.

GROWTH.—Annual.

DATE OF RIPENING.—Flowers appear June to September, seed usually ripe by August.

METHOD OF PROPAGATION.—By seed.

THE PLANT.

Root.—Fibrous.

Stem.—Erect, branching, one to three feet high, roughened with stiff hairs, somewhat purple at the junction of the branches.

Leaf.—Lower leaves stalked, deeply lobed with a large terminal lobe. Upper leaves mostly stalkless.

Flower.—Conspicuous, bright yellow, two-thirds of an inch across, four petals.

Seed.—Seed pod, one to two inches, slightly constructed between each seed, tipped with a long two-edged beak which breaks away whole from the mature pod. Each pod has from ten to seventeen seeds. An average plant may produce several thousand seeds.

REMARKS—Wild Mustard is often mistaken for Indian Mustard, Bird Rape or Wild Radish. Seeds germinate best at a depth of from one-half to three inches of soil, but not at all through five inches. They will remain in the soil ten to fifteen years without losing their vitality.

BIRD RAPE—*Brassica campestris.*

Annual, spreading very rapidly; only the root leaves are rough and hairy, remainder of the plant smooth.

Wild Mustard

(See comparisons, page 47)

HARE'S EAR MUSTARD—*Conringia orientalis.*

OTHER ENGLISH NAMES.—Rabbit's Ear, Hare's Ear, Cabbage, Klinkweed.

Annual and strong winter annual. Introduced from Europe. Stem very leafy, erect with few branches. One and a half to two and a half feet high. Whole plant perfectly smooth and when young covered with a fine bloom like that found on cabbage leaves. Leaves clasp the stem by two rounded lobes. Flowers creamy white; pods four-sided, 3 to 5 inches long, wiry. Seed about one-twelfth of an inch long, dark brown; somewhat the shape of a wheat kernel but on the corner of the lower end is a small projection which is quite characteristic. Average plant will produce about 1,500 seeds.

TUMBLING MUSTARD—*Sisymbrium altissimum.*

OTHER ENGLISH NAMES.—Tall Sisybbrium, Tumble Mustard.

Annual, sometimes a winter annual as it is normally in Europe. The early stage is a rosette of thin, hairy deeply toothed leaves flat on the ground, from which a branching steam grows to a height of two or three feet, bearing finely divided leaves which fall away when the plant ripens. The flowers are pale yellow and produce slender pods about three inches in length, each one containing about 120 seeds, and a single plant is capable of producing a million seeds. The seeds are very small and of a greenish yellow colour. When the plant is ripe it breaks off and is blown by the wind scattering its seeds far and wide.

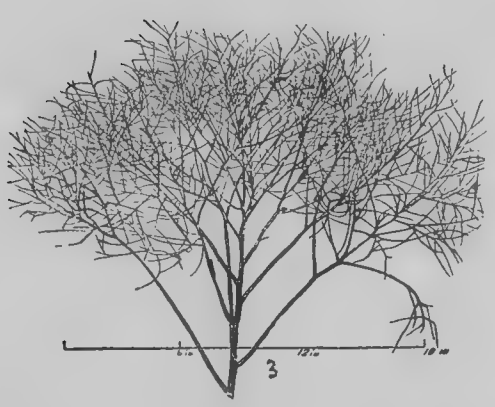
Tumbling Mustard

1. Young plant.
2. Growing plant.
3. Mature plant.

4 5

Hare's Ear Mustard

4. Showing plant. 5. Seed pods.



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BALL MUSTARD—*Neslia paniculata.*

OTHER ENGLISH NAMES.—Yellow-weed, Neslia.

An introduced plant, native of Europe. Annual and winter annual. A slender plant, two or three feet in height with narrow pointed leaves clasping the stem. The dark yellow flowers appear first in clusters at the ends of the branches, but as the stems lengthen the round shot-like pods are found scattered along them on thin stalks less than an inch in length. The wrinkled pod, which does not split open when ripe, contains one small yellow seed.

FALSE FLAX—*Camelina sativa.*

Very often wrongly called ball mustard. It may be well to mention here that the ball of ball mustard is the seed itself, but the ball of the false flax contains 10 to 12 seeds. Introduced from Europe, annual and winter annual, one and a half to two and a half feet high. Erect and branched above, the lower leaves are long and have a stem, but the upper ones apparently clasp the stem with arrow shaped bases. Flowers cream colour; pods pear shaped; seeds yellow, resembling very much a miniature wheat kernel, generally about ten or a dozen seeds in a pod.

Another variety, flat seeded false flax, has a seed much the size and shape of a very large pin head, rather flat and round. The plant is similar to the common false flax, except that the pods are larger and nearly flat on top. This is a very bad weed and common in flax seed.

Ball Mustard ☞

☜ False Flax

TANSY MUSTARD—*Sisymbrium incisum.*

OTHER ENGLISH NAMES.—*Sisymbrium incisum,* variety filipes is known as Green Tansy Mustard, *Sisymbrium incisum,* variety Hartwegianum, is Gray Tansy Mustard.

Both are natives and only give trouble in a crop when it has been sown on stubble or when a summerfallow has been neglected during the latter part of the season.

Biennial. A rosette of leaves being the first year's growth. Slender plants growing to a height of 2 or 4 feet, with finely divided leaves, bright green in one form and gray green in the other; the latter is the coarser and ranker growing plant. They produce a great number of small yellow flowers, the fruit being a narrow pod, less than three-quarters of an inch in length. The minute seeds are longer than their breadth and brownish red in colour.

WORMSEED MUSTARD—*Erysimum cheiranthoides.*

OTHER ENGLISH NAMES.—Treacle Mustard.

A native which responds quickly to cultivation, making a rank growth on stubble or about edges of fields. The seeds have a very pungent and acrid flavour objectionable to stock.

Annual, winter annual, or biennial. Slender and inconspicuous in the wild state, but growing a stout stem three feet or more in height in the grain crops. The leaves are lance shaped and several inches in length. The flowers are small and yellow. The pods are slender, about one inch long and growing at an angle, with their small stalks parallel with the stem or branch to which they are attached. Seeds are very small and brownish yellow in colour.

Tansy Mustard

Wormseed Mustard

RUSSIAN THISTLE—*Salsola Kali, var tragus,* Moq.

OTHER ENGLISH NAMES.—Russian tumbleweed, Russian Cactus.

Introduced from Europe. Annual. The young plant is very much like a pine seedling, but as it becomes older it develops into a low branching bushy plant with a very small taproot. Before the flowers appear it is of a very dark green colour and the branches are striped with red. The leaves are needle shaped and about two inches long. When the flowers are gone and it begins to ripen the little bracklet which encloses the seed becomes very spiny and the whole plant turns colour, the green changes sometimes to a reddish rue and on into a gray or straw-colour. When it ripens the roots seem to decay, so that the wind easily breaks the plant away and it rolls over the prairie, scattering seeds for miles. A good healthy Russian thistle is capable of producing about 50,000 seeds, and if these were shelled out in the first ten miles the weed travelled it would mean practically a seed to every foot.

The seeds are often found in alfalfa seed, and anyone purchasing clover seed should carefully examine it first or send it in for analysis. Too much precaution cannot be taken.

SUGGESTIONS FOR CONTROL.—1. In our prairie sections some think that little can be done until each farmer has his farm fenced. The thistle is easily killed when just coming through the ground, therefore, when the grain crop is badly infested harrowing of the crop is advisable.

2. One of the characteristics of the plant is its ability to withstand drouth, and when in wheat fields where it has apparently become crowded out, a close examination will show that it has just stopped growing. It will remain in that state until the crop is harvested when it takes new life and branches out. Before frost comes it will grow to a bushy plant sometimes two feet in diameter and with the first heavy wind goes tumbling across the fields. This is one of its worst features. Probably the best course to take is either to follow the binder with the disc harrow or to stack the grain or thresh early and plough shallow.

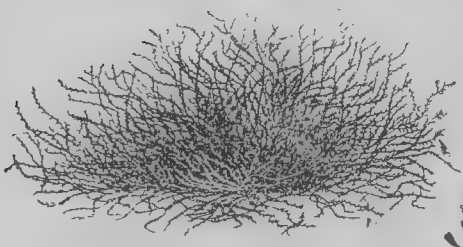
SHEPHERD'S PURSE—*Capsella bursa-pastoris.*

Introduced in garden seeds from Europe by way of Ontario, where it is well known as a garden weed. In the prairie provinces, it has proved itself capable of doing serious damage not only to gardens but to wheat fields. Inspectors report it as being in certain localities more injurious to crops than stinkweed. It is abundant on the roadways in some of the older settlements.

It is an annual and winter annual, ripening seeds throughout the season. The plant consists of a tuft of toothed or deeply notched leaves at the ground, from which a more or less branching stem arises, bearing clusters of small white flowers which produce flat triangular pods containing a score or so of very small reddish yellow seeds. These seeds may be buried deeply but will grow after many years when brought near to the surface again.

Russian Thistle

A. Mature plant.



A

Shepherd's Purse

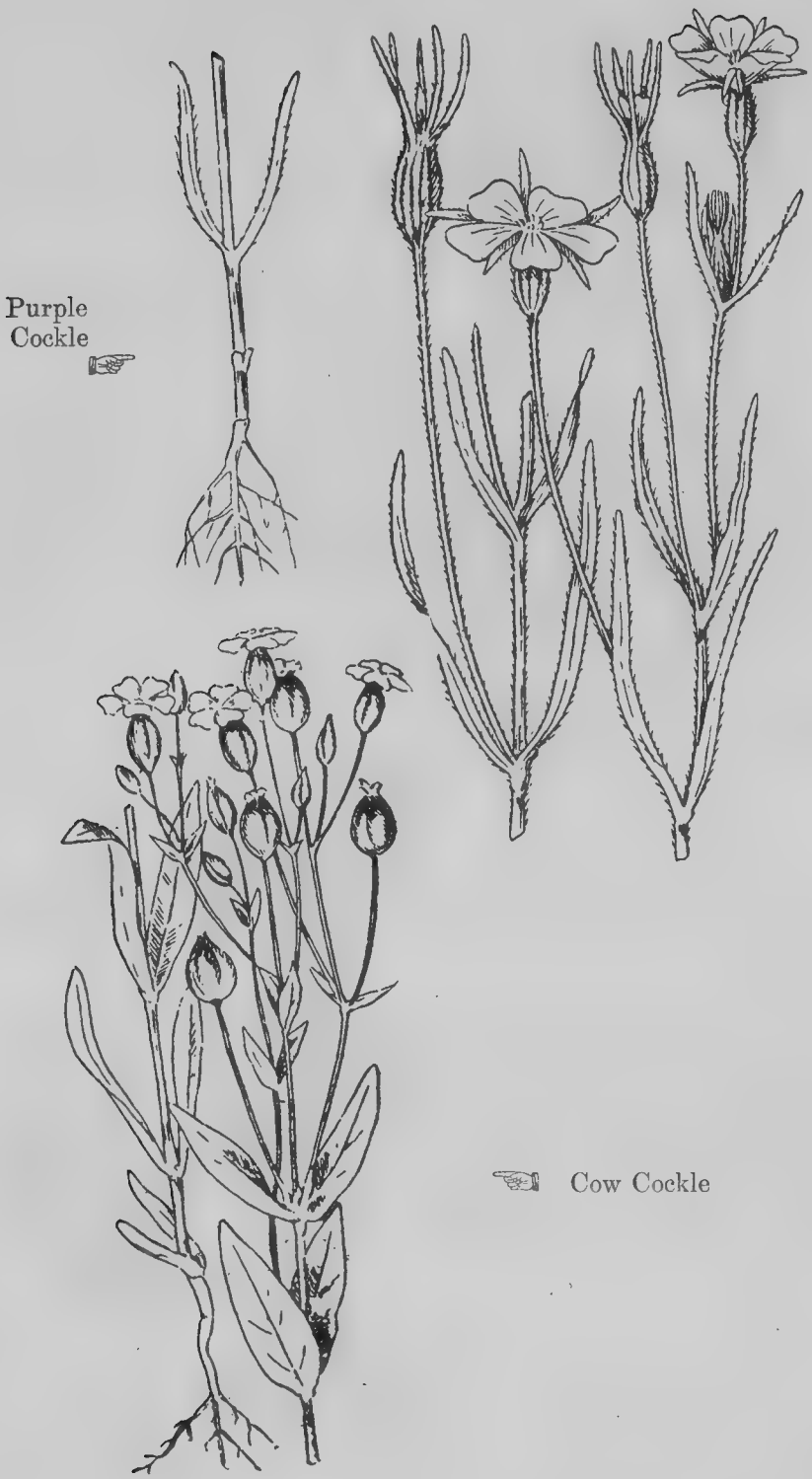
PURPLE COCKLE—*Lychnis Githago.*

This is an upright growing annual of European origin with long narrow opposite leaves covered with fine silky hairs. Its flowers are purplish and about one inch in diameter. The seeds are blackish in colour, of a rounded triangular shape. They have a rough surface and are of a poisonous nature.

COW COCKLE—*Saponaria Vaccaria.*

OTHER ENGLISH NAMES.—Cowherb, China Cockle.

A smooth annual, growing about two feet high with pointed opposite clasping leaves, which are smooth and gray like those of cabbage. Its flowers are pink and about half an inch in diameter, giving place to seed pods within a five angled calyx. The seeds are globular with a slightly granulated surface black in colour. It ripens about the same time as wheat. It is very abundant in many portions of the province, but originally came from Europe. Being very conspicuous when in bloom, hand picking may readily be practised when not too abundant.


Purple
Cockle
Cow Cockle

NIGHT FLOWERING CATCHFLY—*Silene noctiflora.*

OTHER ENGLISH NAMES.—Sticky Cockle.

Introduced from Europe. Annual, winter annual. Erect, one to three feet high, somewhat branching, whole plant covered with soft, glandular hairs. Lower leaves ovate, narrowed at the base, stem leaves lance shaped, flowers few, about one inch across, pinkish inside, yellowish white outside, opening at night. Only recently introduced in the west, it is a heavy seeder and gives trouble in clover fields. It is a common impurity in clover and grass seed, especially in the seed of alsike clover.

BLUE BURR—*Ehcinospermum Lapulla.*

OTHER ENGLISH NAMES.—Stickweed, Beggar's Lice.

An introduction from Europe by way of Eastern Canada. Especially noticeable on roadsides and in waste places, but also abundant in crops sown on stubble.

Annual and biennial. A grayish green weed seldom growing over two feet in height. Its leaves are narrow and hairy and it has small blue flowers like those of the forget-me-not. The seed has a double row of barbed prickles around its triangular covering, which is about one-twelfth of an inch in length and adheres readily to the clothing or to the coats of animals. Plants have a heavy disagreeable odour, perceptible when a number of them are growing together. Seeds are often found as an impurity in grass seed.

Night
Flowering
Catchfly

Blue Bur

GREAT RAGWEED—*Ambrosia trifida.*

OTHER ENGLISH NAMES.—Crownweed, Kingweed, Crowfoot.

A native, found mostly on heavy clay land. Its seeds being difficult to remove, are very objectionable in wheat.

Annual. A rough, coarse upright weed with large opposite leaves, most of which are three lobed. The flowers are of two kinds, the sterile, borne on tapering spikes about four inches in length, being green above and dull yellow beneath. The seed-bearing flowers grow close to the stem in clusters at the bases of the spikes and leaf stalks. The seed is about the size of a grain of wheat, but tapering at one end and having hornlike projections just above the middle which suggests the name "crownweed."

COMMON RAGWEED—*Ambrosia artemisiifolia,* L.

An annual plant with hairy stems, two to four feet high. The leaves are smooth above with grayish white downy hairs beneath. The leaves are much divided. Flowers are quite similar to those of the Great Ragweed but smaller.

Great
Ragweed
Common
Ragweed

OTHER COMMON WEEDS.

COUCH GRASS—*Agropyron repens,* L.

A slender perennial grass with tough creeping rootstocks which spread through the soil for a depth of three or four inches. It is sometimes called twitch grass, quack grass or scutch grass in its young stage, but after it has headed out it may be recognised by its peculiar spike or head in which the small spikelets will be found with their flat side facing the stem. The leaves are dark green, rather distinctly veined and slightly hairy below.

Once this weed is established, it is easily known by the large matted beds which it forms, and in which nothing else is able to grow. The long branching, jointed rootstocks send up a new plant from each joint, which helps the plant to spread rapidly.

GUMWEED—*Grindelia squarrosa.*

Annual, usually found on vacant and prairie lands. It has very sticky flower buds which easily distinguish it. The flowers are yellow. This plant usually disappears with cultivation.

TOAD FLAX—*Linaria vulgaris,* Hill.

OTHER ENGLISH NAMES.—Butter and Eggs, Ramsted, Wild Snapdragon, Flaxweed, Eggs and Bacon, Yellow Toad Flax.

Introduced from Europe. A persistent, deep-rooted perennial. Stem erect, slender, becoming wiry. Hairless, slightly waxy. Leaves, stalkless, extremely numerous, mostly alternate, linear, without teeth or divisions, acute at both ends. Flowers nearly an inch long, showy pale yellow with orange lips, borne in erect dense racemes; the 2-lobed corolla closed and mouth-like, but, by gentle pressure at the sides, it opens and closes like the muzzle of an animal.

Couch Grass

Gumweed

Toad Flax

SWEET GRASS—*Hierochloa borealis,* R. & S.

A native sweet scented perennial grass which is found in low parts of the prairie. It has a spreading head, golden brown in colour and ripens seeds early in June. Its rootstocks penetrate much deeper than those of the couch-grass and are especially difficult to eradicate from cultivated fields during wet seasons. In Alberta and Saskatchewan the method that has given most satisfaction has been deep, clean ploughing, just before the seeds ripen followed by heavy seeding to barley or rye. After the crop has been removed and as late as frost will allow, the land should be again ploughed. At the Indian Head Experimental Farm, Mr. McKay preferred the following method. He says, "We find that to plough deeply in the latter part of July or in the beginning of August, then harrow well and repeat in September and October. With us, when ploughed early, every root in the ground grows, while if ploughed after wet weather, when the growing season is over, it is easily killed."

Sweet Grass

POVERTY WEED—*Iva axillaris,* Pursh.

A perennial native plant less than a foot in height but having tough spreading underground stems. Its flowers are small and not conspicuous, hanging short stalked in axils of the upper leaves. Leaves are rough, narrow and about an inch in length. This weed has been found very difficult to eradicate and needs well directed persistent efforts with sharp implements. In cultivated land it is first noticed around the edges of dry sloughs or low fences, but soon spreads to the adjoining cultivated upland. Poverty weed thrives immensely under the system of stubble farming preceded by a summerfallow ploughed shallow and only once.

How to eradicate this persistent pest is yet largely a matter of theory, but as it is a perennial and has a long and tough underground rootstock deep ploughing is recommended late in the fall when the land is dry. Follow this up the next spring with the necessary top tillage, preferably with a duckfoot cultivator to pull the roots up on top to wilt and die. Then plough deeply again after the rainy, growing season is over or just before harvest. Additional similar top tillage from that till winter will so kill or weaken the plants that the following year's crop will usually choke out the remaining plants. Where poverty weed is bad in no case should a stubble crop be sown. It is thought that when a fallow is handled as set forth and then sowed about the twenty-fifth of August to winter rye, the vigorous early growing rye, in the following spring, will beat out the poverty weed from the start. Seeding down to brome or rye grass also seems to crowd out this weed, which never seems to show up much even in the virgin prairie.

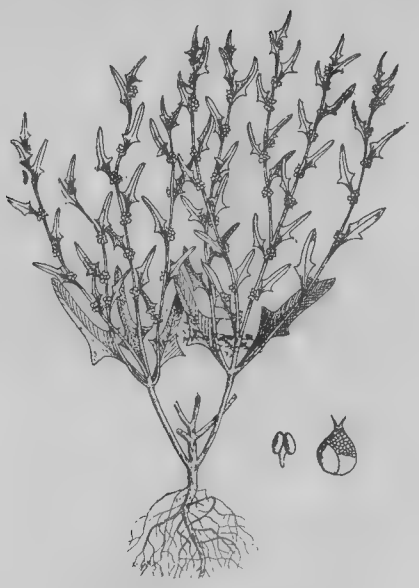
SPEARLEAF GOOSEFOOT—*Monolepis chenopodioides.*

A low spreading native annual, dark green in colour with inconspicuous flowers. The leaves somewhat resemble in shape those of lamb's quarters, or of sheep sorrel. It makes an early growth and in this way smothers the young wheat or oats. Many bare spots in crops have been caused by this weed, which is not hard to kill by the ordinary methods adopted for annual weeds. The use of the drag harrow is effective.

SMALL WALLFLOWER—*Erisymum parviflorum.*

A native biennial of the mustard family which sometimes appears ahead of the grain in crop sown on stubble or a carelessly worked summerfallow. Its flowers are yellow and about a quarter of an inch across. The slender seed pods are about two inches in length, containing small irregularly-shaped brownish seeds. The whole plant is of a sage green colour. This plant is often mistaken for wormseed mustard. There is somewhat of a resemblance, but the plant is coarser throughout, flowers larger and pods at a different angle, more rigid.

Poverty Weed



Spearleaf Goosefoot

PEPPER GRASS—*Lepidum apetalum.*

Annual and winter annual. It grows up to two feet in height. The plant is very branching when mature with a great number of seed pods on the spreading branches, giving it the appearance of a small tree. The flowers are very small and the leaves fall away when the seeds begin to ripen. This plant is often mistaken for Shepherd's Purse. One difference between the two is the fact that the leaves of pepper grass are hot or "peppery" when chewed.

Small Wallflower

Peppergrass

LAMB'S QUARTERS—*Chenopodium album,* L.

An annual weed widely distributed in cultivated land. It grows to a height of from 2 to 6 feet. The stem is grooved and much branched. The leaves are whitish-green below and dark green above. The flowers are inconspicuous and greenish in colour.

REDROOT PIGWEED—*Amaranthus retroflexus,* L.

An annual, with pink root, stout, erect stem, and many branches, it grows from 1 to 6 feet high. The leaves are light green in colour, and ovate in shape. The flowers are in spikes, which terminate branches, or are from the axils of the leaves and are green in colour.

TUMBLE WEED—*Amaranthus graecizans.*

This plant resembles Russian Thistle quite closely, but can be distinguished from it by its round, shiny, jet-black seeds, and by its leaves, which, although small, have a definite blade. It is a low-branched annual when growing in sandy, open fields and roadsides.

COCKLEBUR—*Xanthium spinosum.*

Annual and tall much branched plant. This plant is distinctive in that when it reaches maturity it has burs from one to one and a half inches long, armed with prickles. These burs attach themselves to people's clothing or to the wool of sheep or hair of animals.

Lamb's Quarters

Redroot Pigweed

Tumble Weed

Cockle-bur

COMPARISON OF SIMILAR PLANTS.

Field Bindweed Wild Buckwheat

FIELD BINDWEED—*Convolvulus arvensis.*

Perennial, with creeping cord-like rootstocks, which throw up twined stems often forming thick mats on the surface of the land and twist around stems of other plants for support. The flowers are pink and funnel shaped and over an inch across.

WILD BUCKWHEAT—*Polygonum Convolvulus.*

Annual, flowers very small, greenish, drooping and in small clusters. The plant is a twining vine with smooth, thin arrow-shaped leaves.

COMPARE WITH WILD MUSTARD.

(See cut page 25)

INDIAN MUSTARD—*Brassica junceas.*

This mustard is frequently mistaken for Wild Mustard, but differs from it in being smooth, nearly hairless, somewhat covered with a fine bloom. The upper leaves are narrower, the lower ones pinnatified with a large terminal lobe.

BLACK MUSTARD—*Brassica nigra.*

Annual, long spreading branches, square pods, only half an inch long, erect and closely pressed to the stem.

WILD RADISH—*Raphanus Raphanistrum.*

Annual and winter annual, flower yellow slightly streaked with purple, pods are similar to those of the cultivated radish.

COMPARISONS WITH PERENNIAL SOW THISTLE.

(See cut page 17)

DANDELION.—Perennial, crown root, plant usually about four to ten inches high. Flowers yellow about an inch across and quite similar in size and colour to Perennial Sow Thistle.

Chief Distinguishing Characteristics.

Perennial Sow Thistle—Seldom less than two feet high when in flower.

Dandelion—Seldom more than six or eight inches high when in flower.

ANNUAL SOW THISTLE.—Annual, tap root, erect plant similar in size and general form to the perennial but flowers pale yellow and compressed and smaller.

Chief Distinguishing Characteristics.

Perennial Sow Thistle—Running rootstocks. Flower like dandelion.

Annual Sow Thistle—Tap root; paler, smaller, and more compressed flowers than the Perennial.

BLUE LETTUCE.—Perennial, running rootstocks, erect plant with blue flowers.

Chief Distinguishing Characteristics.

Perennial Sow Thistle—Large yellow flowers, soft spines on outline of leaves.

Blue Lettuce—Small Blue flowers, leaves with smooth outline.

Dandelion

Annual Sow Thistle

TILL
YOUR
LAND
WELL

Blue Lettuce

SOW
CLEAN
SEED

POISONOUS WEEDS.

POISON HEMLOCK (or Cowbane)—*Cicuta maculata.* L.

This is a plant which in Europe and various parts of America is known to be harmful. Although several species occûr in different localities, the poisonous properties seem to be much the same. It is parsnip-like in appearance, but the flowers are white, and it is found growing in low, damp places or on banks of creeks or lakes being much more abundant after a series of wet seasons. It may be distinguished by the cluster of fleshy roots, which have a sweet aromative odour. These roots are the most poisonous parts of the plant, containing as they do a volatile oil, which is especially powerful after the stalks have died away in the fall and until new plants have grown in the spring. It would not, however, be safe to say that the stems, leaves and seeds are not poisonous, as it would seem that a number of horses were affected by cropping portions of cicuta growing in a pasture near Regina a couple of years ago. The symptoms in this case were diarrhœa with weakness, temperature about 103 degrees. Two showed partial paralysis with slight muscular spasms. The heart action was irregular and of tumultuous nature. All recovered. In this case the animals must have had a very small quantity of the poison, which is so strong that a piece of the root the size of a marble may prove fatal to man. The symptoms of cicuta poisoning of sheep as observed in Montana were, an attempt to run in any direction, cerebral frenzy accompanied by involuntary muscular movements, which suggest colic; the respiration was laboured and irregular, the pulse wiry and intermittent. In some cases of cattle being poisoned they died within fifteen minutes of the first signs. Sheep have died suddenly in various parts of the Maple Creek district. In every case where deaths have been frequent, cicuta was found to be growing near where the sheep had been watered. Permanganate of potash should be promptly administered and morphine may be given hypodermically as follows: For sheep, 1½ grains; for cattle and horses, 3 to 10 grains. If drugs are not handy, try melted lard.

DEATH CAMAS—*Zygadenus venenosus.*

This plant has waxy, yellowish flowers and is somewhat like the onion. It is the eating of the bulbous root (onionlike also) that causes poisoning, the symptoms of which are almost the same as with Cowbane.

Poison Hemlock

Death Camas

Poisonous weeds are usually found growing on waste lands, Cowbane on low swampy places, Death Camas on moist land and Loco Weed on the drier soils.

STEMLESS LOCO WEED—*Oxytropis Lamberti.*

Loco Weed. This is a term applied to several species of the pea family which have been suspected of causing serious trouble in the flocks and herds of the Western States and of Alberta. The eating of the loco seems to be an acquired habit which has recently been to some extent on the other side of the line in ranching districts and a good many affected horses have been brought over for sale. Two species *Oxytropis Lamberti* and *O. splendens,* are abundant from Manitoba to the Rockies. The flowers of the former are mostly pale yellow; those of the latter are purple, and this plant has a much more silvery appearance than Lamberti. The United States Government has fully investigated the subject of loco poisoning and the results have been published in Bulletin 112 of the Bureau of Animal Industry, which can be had upon application to Department of Agriculture, Washington, D.C. The symptoms are drooping head, rough coat and irregularities in gait and action, such as may be produced in man by alcohol. Sight is frequently affected to a greater or lesser extent, and so also is hearing. In chronic cases of the loco habit in sheep the animal becomes emaciated and crazy, perhaps sheds all or part of the wool and becomes unable to care for itself and may lose sight of the land. Fits of trembling are of frequent occurrence until death from exhaustion and inadequate nutrition is the result.

EXAMINE YOUR PASTURE

FENCE YOUR FARM

Loco Weed

Saskatchewan Revised Statutes 1920

CHAPTER 167.

An Act respecting Noxious Weeds.

HIS Majesty, by and with the advice and consent of the Legislative Assembly of Saskatchewan, enacts as follows:

SHORT TITLE.

1. This Act may be cited as *The Noxious Weeds Act*. Short title
1912-13, c. 39, s. 1.

INTERPRETATION.

2. In this Act, unless the context otherwise requires, Interpretation
the expression:

1. "Commissioner" means the Weeds Commissioner; "Commissioner"

2. "Department" means the Department of Agriculture; "Department"

3. "Earthwork" means any dump or heap of earth or place from which earth has been taken; "Earthwork"

4. "Inspector" means an inspector appointed by the minister under this Act or by the council of any city, town, village or rural municipality in accordance with the provisions of the several Acts prescribing the duties of such bodies; "Inspector"

5. "Minister" means the Minister of Agriculture; "Minister"

6. "Municipality" means a city, town, village or rural municipality; "Municipality"

7. "Noxious weeds" includes the following weeds: Canada thistle, perennial sow thistle, wild oats, stinkweed, wild mustard, hare's-ear mustard, tumbling mustard, ball mustard, Russian thistle, false flax, purple cockle, cow-cockle, ragweed, bird rape, blue burr, night flowering catchfly, all barberry except Japanese barberry, tansy mustard, wormseed mustard and shepherd's purse; and such other weeds as may be declared by the minister by order published in *The Saskatchewan Gazette* to be noxious weeds; "Noxious Weeds"

8. "Occupant" means a person occupying any land or a person resident in the municipality in which such land is situated having the right to occupy such land; "Occupant"

"Owner"

9. "Owner" includes every person who has any estate or interest in land, or who has any right to be vested with such an estate or interest and for the purpose of this Act the council of any municipality shall be deemed to be the owner of all of the roads within its boundaries. 1912-13, c. 39, s. 2.

INSPECTORS AND OTHER OFFICERS.

Appointment by minister

3. The minister may from time to time appoint such inspectors and other officers as may be required to carry out the provisions of this Act, fix their remuneration and define their duties. 1912-13, c. 39, s. 3.

Appointment by council

4.—(1) Every municipal council shall before the first day of March in each year appoint such inspectors as are required to enforce the provisions of this Act within the municipality and shall clearly define the territory of each so that every part of the municipality shall be covered.

(2) An inspector shall hold office until his successor is appointed and shall be paid such remuneration as the council decides.

(3) The secretary or clerk of the municipality shall notify the Weeds Commissioner at the Department of Agriculture forthwith of the appointment of such inspectors and of their post office addresses, their places of residence and the territory assigned to each.

(4) If a council neglects in any year to appoint an inspector or inspectors as required by this Act each member of the council shall be guilty of an offence and liable on summary conviction to a penalty not exceeding $25 but no member shall be liable to the penalty hereby imposed who shows to the satisfaction of the magistrate that he made reasonable efforts to procure the appointment. 1916, c. 37, s. 32 (1); 1917, c. 34, s. 33 (2).

Right of entry

5. Every inspector of noxious weeds shall, for the purpose of performing his duties and exercising the powers herein contained, have the right of entering upon any land without the consent of the owner or occupant. 1912-13, c. 39, s. 4.

DUTY OF OWNER OR OCCUPANT OF LAND.

Onus on occupant

6. Every owner or occupant of land shall use all reasonable means within his power to keep under control all noxious weeds thereon and if he makes default in so doing shall be guilty of an offence and on prosecution therefor by an inspector or by the secretary of a municipality or other officer under this Act or any resident ratepayer shall on summary conviction thereof be liable to a penalty not exceeding $100. 1912-13, c. 39, s. 5; 1916, c. 37, s. 32 (2).

DESTRUCTION OF WEEDS IN GROWING CROP.

7.—(1) Any inspector finding noxious weeds in any grain or other crop may notify the owner or occupant in writing: Weeds in growing crop

(*a*) to fence the straw and remove the screenings from such crop in closely woven and securely tied sacks within five days after it is threshed and not to remove any of such straw or screenings from the farm upon which they were grown or permit them to be so removed; or

(*b*) to burn both the straw and the screenings from such crop within five days after it is threshed:

Provided that in a rural municipality an inspector with the consent of the councillor for the division, may, if noxious weeds are very numerous in any growing crop, notify the owner or occupant in writing to summerfallow the field on which such crop is growing during the season next following or to sow it with some suitable grass seed or clover or a mixture of any of such of these as are commonly used in the district;

Provided further that upon being required by an inspector in writing so to do, an owner or occupant shall destroy Canada thistle or perennial sow thistle in any growing crop, and in a rural municipality may, with the consent of the councillor for the division, be required to cut and burn or plough under such crop or any specified part thereof within a stated time.

(2) Every inspector shall make and preserve a duplicate copy of any notice given in accordance with this Act and shall at the expiration of his term of office transfer all such notices to the secretary or clerk of the municipality, as the case may be, for the information of the council and of his successor.

(3) Every inspector shall make a weekly return to the department and to the secretary of the municipality in which he is engaged of all notices served by him in connection with the destruction of Canada thistle and perennial sow thistle. 1912-13, c. 39, s. 6; 1917, c. 34, s. 33 (3) (4); 1919-20, c. 48, s. 2.

DESTRUCTION OF WEEDS, GENERAL.

8. Any inspector finding noxious weeds on occupied land not under crop at the time shall notify the occupant thereof to destroy such weeds by hand pulling, cutting and burning, ploughing or cultivating, as may be specified, within five days from the date of such notification. 1912-13, c. 39, s. 7; 1919-20, c. 48, s. 3. Occupied lands

Unoccupied lands

9.—(1) Subject to the provisions hereinafter contained any inspector finding noxious weeds on unoccupied land not under crop at the time may take the necessary steps to destroy such weeds by hand pulling, cutting and burning, ploughing or cultivating, as he deems advisable and may, with the consent of the mayor, overseer or in case of a rural municipality the councillor for the division, sow such land with a proper quantity of some suitable grass seed or clover, or a mixture of any of such of these as are commonly used in the district and shall forthwith after the performance of such work notify the owner in writing that such weeds have been destroyed.

(2) The owner of or any other person having an interest in unoccupied land may appoint some resident of Saskatchewan as his agent for the purposes of notification hereunder, and, in such case he shall, by registered mail and before the first day of May in any year, inform the clerk or secretary treasurer of the municipality in which such land is situate, of such appointment.

(3) The clerk or secretary treasurer shall thereupon transmit such information to the weed inspector concerned and upon receipt of such information the inspector if the value of any work to be performed exceeds $25, shall, before destroying the weeds upon such land, notify the agent by registered letter to do so within fifteen days of the date of the mailing of the notice; and the inspector shall not destroy or cause such weeds to be destroyed except with the written authority of the owner or agent until after the expiry of the fifteen days. 1919-20, c. 48, s. 4.

Railway lands

10. Any inspector finding noxious weeds on railway right of way or fireguard or any unoccupied lands owned by or forming part of the land grant of any railway company shall notify any section foreman or station agent of the railway company by registered letter to destroy such weeds by hand pulling, cutting and burning, ploughing or cultivating, as may be specified, within five days from the date of such notice. 1912-13, c. 39, s. 9; 1919-20, c. 48, s. 5.

Irrigation lands

11. Any inspector finding noxious weeds in or upon any ditch or right of way of any irrigation company shall notify the manager, superintendent or ditch rider of such company by registered letter to destroy such weeds by hand pulling, cutting and burning, ploughing or cultivating, as may be specified, within five days from the date of such notice. 1912-13, c. 39, s. 10; 1919-20, c. 48, s. 6.

Penalty

12. Any person to whom notice has been duly given under sections 7, 8, 9, 10 or 11 who neglects to carry out the directions contained therein shall be guilty of an offence and liable on summary conviction to a penalty not exceeding $100 and not less than $10. 1912-13, c. 39, s. 11.

13. In case noxious weeds are not cut down or otherwise destroyed on any land pursuant to notice given by an inspector under this Act, the inspector or any person or persons directed by him may forthwith enter upon the land with the necessary teams and implements and destroy the weeds in such manner as he sees fit, and may, with the consent of the mayor, overseer or in the case of a rural municipality the councillor for the division, sow such land with a proper quantity of some suitable grass seed or clover, or a mixture of any of such of these as are commonly used in the district. 1919-20, c. 48, s. 7. Procedure where notice disregarded

RECOVERY OF COST OF DESTRUCTION.

14. The amounts expended in the work performed under section 9 or 13 may be recovered from the owner or the occupant of the land by action in the name of the minister, if such amounts have been expended by the department, or in the name of the municipality in other cases, or by distress of any chattels on the land. 1919-20, c. 48, s. 8. By action

15. Any such amount which has not been satisfied on or before the first day of January next following its expenditure together with such costs as may have been incurred shall be added to and form part of the municipal assessment of such lands in all respects as if it were an original tax and it shall have the same effect on the land and may be recovered in any of the modes available for the recovery of such taxes and the amount so recovered shall be transmitted to the Provincial Treasurer and form part of the consolidated fund of the province if the said expenditure has been made by the Department of Agriculture or to the treasurer of the municipality that has made the expenditure if such expenditure was made by it: Added to assessment

Provided that no sum in excess of $200 shall be charged in any one year against any one quarter section of land. 1912-13, c. 39, s. 14; 1913, c. 67, s. 19 (2).

16. The secretary or clerk of a municipality upon receiving notice from the minister or the treasurer, as the case may be, of any amount to be charged under section 15 against any parcel of land in his district shall enter the said amount against the said land and until it is paid enter it in all returns to be made by him in the same manner as unpaid municipal taxes. 1912-13, c. 39, s. 15. Enter amount against land

17. A certificate purporting to be signed by the minister or by the treasurer of a municipality, as the case may be, to the effect that an amount named therein has been expended during any year for the destruction of noxious weeds upon Certificate of expenditure to be *prima facie* evidence

any area of land described shall be *prima facie* evidence that the amount named has been so expended. 1912-13, c. 39, s. 16.

SEED OR FEED CONTAINING NOXIOUS WEEDS.

Sale for seed

18. No person shall sell, dispose of, or offer for sale or disposal to any other person for seed, any cereal grain in which there are more seeds than one of any noxious weed per pound, any flax in which there are more seeds than one of any noxious weeds per ounce, or any clover or grass seed in which there are more than five seeds of any noxious weed per ounce:

Provided that the provisions of this section shall not apply to seed to which the provisions of *The Seed Control Act of Canada* and any amendments thereto or regulations thereunder are applicable. 1912-13, c. 39, s. 17.

Sale for feed

19. Any inspector may by notice in writing prohibit any person from selling or otherwise disposing of or offering for sale or other disposal, to any other person, or from purchasing or otherwise acquiring from any other person, any cereal grain intended for the purpose of feed in which there are more than five seeds of any noxious weed to every ounce of such grain. 1912-13, c. 39, s. 18.

Hauling grain

20. No person shall haul to market or elsewhere by any route other than a road allowance or other surveyed road any cereal grain in which there are more seeds than one of any noxious weed to every ounce of such grain unless and until such grain has been placed in closely woven sacks securely tied. 1912-13, c. 39, s. 19.

Sale of cleanings

21. No person shall purchase, sell, barter or otherwise dispose of or remove from any premises any bran, shorts, chopped or crushed grain or cleanings containing seeds of noxious weeds without first destroying the germinating qualities of such seeds:

Provided that matter containing seeds of noxious weeds may under the authority of and subject to such regulations as are prescribed by the minister, be removed from any grain elevator or warehouse for the purpose of sheep feeding or for such other purpose as will insure the complete destruction of such seeds. 1912-13, c. 39, s. 20.

Exposure of seeds of noxious weeds

22. No person shall for a period of more than five days leave exposed or unprotected at or near any place where grain has been threshed any screenings containing the seeds of noxious weeds nor shall any person place outside any mill, elevator or grain warehouse except in a securely constructed building, shed or covered bin any matter containing such seeds without having first destroyed the germinating qualities thereof. 1912-13, c. 39, s. 21.

THRESHING MACHINES TO BE CLEANED BEFORE REMOVAL.

23. Every person in possession or charge of any threshing machine shall thoroughly clean such machine both inside and out and shall cause all the wagon racks used in connection with such machine to be thoroughly cleaned immediately after threshing at each farm and before removing such machine or rack or any part thereof to another farm and shall display in a prominent place upon his machine a card containing this provision which will be furnished free upon application to the department. 1912-13, c. 39, s. 22. Threshing machines

WEEDS COMMISSIONER.

24. The Lieutenant Governor in Council may appoint a Weeds Commissioner as an officer of the department and may fix his remunerations. Appointment of weeds commissioner

(2) It shall be the duty of the Weeds Commissioner to:

(*a*) have supervision over all inspectors and to instruct and direct them in the performance of their duties;

(*b*) afford information to the public on matters relating to the destruction of noxious weeds and other plants injurious to agriculture;

(*c*) prepare and supervise the publication of bulletins for public information on the subjects mentioned in clause (*b*);

(*d*) conduct such investigations as are necessary for the proper administration of this Act;

(*e*) answer all inquiries relating to noxious weeds and the identification thereof and otherwise assist in the administration of this Act as the minister directs. 1912-13, c. 39, s. 23.

PENALTIES

25. Every inspector or other officer who neglects to perform any duty placed upon him by this Act shall in respect of each instance of neglect be guilty of an offence and liable on summary conviction to a penalty not exceeding $25 and not less than $5. 1912-13, c. 39, s. 25. Neglect of duty by inspectors

26. Violation of any provision of this Act for which no penalty is provided shall be an offence and the offender shall on summary conviction be liable to a penalty not exceeding $50 and not less than $5. 1912-13, c. 39, s. 26. Violation of the Act

An Act to amend The Noxious Weeds Act.

1923.

HIS Majesty, by and with the advice and consent of the Legislative Assembly of Saskatchewan, enacts as follows:

Rev. Stat. c. 167

1. *The Noxious Weeds Act* is amended by inserting therein as section 11*a the following*:

Rural municipality bylaw

"**11***a*. Where the council of a municipality has passed a bylaw under section 187*a* of *The Rural Municipality Act,* such bylaw shall be in force in such municipality notwithstanding anything contained in this Act."

Section 15 amended

2. Section 15 is amended by striking out the words "on or before the first day of January" and substituting therefor the words "before the thirty-first day of December.

REGINA: Printed by J. W. REID, King's Printer.